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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/511,526

04/15/2005

Joo Hwa Tay

101172.55433US

4497

23911 7590 05/09/2007  
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EXAMINER

PRINCE, FRED G

ART UNIT

PAPER NUMBER

1724

MAIL DATE

DELIVERY MODE

05/09/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/511,526

Applicant(s)

TAY ET AL.

Examiner

Fred Prince

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 12 March 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,3-14,20-29 and 31 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 29 and 31 is/are allowed.
- 6) ☒ Claim(s) 1, 3-14 and 20-28 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Allowable Subject Matter***

1. The indicated allowability of claims 1, 3-14 and 20-28 is withdrawn in view of the newly discovered reference(s) to Hoffmann et al. (US Pat No 4,880,740) and Caccavo, Jr. et al. (US Pat 5,569,596). Rejections based on the newly cited reference(s) follow.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 3-14, 21 and 24-27 are rejected under 35 U.S.C. 102(b) as being anticipated by Hoffmann et al. (US Pat No 4,880,740).

Hoffmann et al. teach a method for reducing a level of certain chemical compounds in a sample, including organic and inorganic compounds from environmental, domestic and industrial sources (col. 3, lines 18-36), said method comprising subjecting said sample to an anaerobic treatment (abstract), including sequential aerobic-anaerobic treatment (col. 8, lines 6-22; col. 9, lines 1-4) wherein a valency of one or more redox mediator species, including iron (col. 4, lines 63-68; col. 5, lines 1-12) is manipulated by microorganisms capable of iron reduction and oxidation (col. 4, lines 41-54) such that, under anaerobic conditions, the one or more redox mediator species are reduced to a

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lower order valency (abstract; col. 5, lines 17-28), and wherein formation of insoluble particles comprising the chemical compounds is facilitated (col. 3, lines 64-68; col. 4, lines 1-11).

4. Claims 1, 4-10, 12, 14 and 20-21 are rejected under 35 U.S.C. 102(b) as being anticipated by Caccavo, Jr. et al. (US Pat No 5,569,596).

Caccavo, Jr. et al. teach a method for reducing a level of certain chemical compounds in a sample, including organic and inorganic compounds from environmental and industrial sources, including soils (col. 1, lines 11-27), said method comprising subjecting said sample to an anaerobic treatment (abstract), wherein a valency of one or more redox mediator species, including iron (col. 3, lines 40-43; claims 14-16) is manipulated by microorganisms capable of iron reduction and oxidation (col. 4, lines 47-54) such that, under anaerobic conditions, the one or more redox mediator species are reduced to a lower order valency (col. 3, lines 40-43), and wherein formation of insoluble particles comprising the chemical compounds is facilitated (claim 15).

### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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6. Claims 22-23 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over either Hoffmann et al. or Caccavo, Jr. et al. in view of Khudenko (US Pat No 5,514,278).

The primary references are described above. Neither reference discloses alternating anaerobic and aerobic treatment and treating activated sludge.

In any case, Khudenko discloses the well known concept of alternating aerobic and anaerobic treatment in order to, for example, provide a more complete degradation of contaminants (col. 22, lines 7-20) and treating activated sludge in order to, for example, produce easily degradable products (col. 14, lines 29-44).

Accordingly, it is submitted that it would have been readily obvious for the skilled artisan to modify the method of either primary reference such that either employs cycled anaerobic and aerobic treatment in order to, for example, provide a more complete degradation of contaminants and treating activated sludge in order to, for example, produce easily degradable products, as suggested by Khudenko.

#### ***Allowable Subject Matter***

7. Claims 29 and 31 are allowed for the reasons previously indicated by the examiner.

#### ***Conclusion***

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Reference are cited of interest to show the state of art.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fred Prince whose telephone number is (571) 272-1165. The examiner can normally be reached on Monday-Thursday, 6:30-4:00; alt. Fridays 6:30-3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on (571) 272-1166. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
Fred Prince  
Primary Examiner  
Art Unit 1724

fgp  
5/3/07